F77L REPORT
JANUARY 1990 SUPPLEMENT

LAHEY UNIX FORTRAN

Lahey Computer Systems anticipates having a FORTRAN77 compiler for 80386 based UNIX computers by the end of 1990. This was announced by Tom Lahey during his recent trip to Australia. Those who are anxious to see this compiler appear sooner rather than later should really write or fax Lahey to register your intent to purchase when the product becomes available.

LAHEY FORTRAN FOR SUN COMPUTERS

Those who would like to see Lahey produce a FORTRAN77 compiler for SUN computers should campaign SUN to co-operate with Lahey on this. Tom Lahey is on record that he can port Lahey FORTRAN onto the SUN in less than 6 months given the loan of 3 machines from SUN and a very modest amount of funding.

NEW MATH CHIPS *With the price drop of Cyrix the 80387 is a poor buy*

We have finally received samples of the 2C87 chips described in the last issue of the 'F77L REPORT'. The Cyrix clone of the 80387 chip has also arrived. A comparison between these new math chips and their Intel equivalents is given below. All of these sample programs are compute bound. They involve little or no file handling.

compiler	F77L	F77L *2C87*	F77L	F77L	F77LEM/32		
math chip	80287	IIT	80387	Cyrix	80387	Cyrix	Weitek
linpack (KFLOPS)	27	47	220	232	254	321	569
whetstone (KFLOPS)	194	329	1260	1560	1550	1990	2170
livermoreloops (KFLOPS)	31	58.5	211	298	274	377	737
fft(30,000 values) calc	110	71.8	16.8	15.9	9.94	7.64	3.48
series generation	68.6	31.8	13.2	9.1	9.28	4.78	3.68
matrix inversion	24.0	14.0	3.03	2.74	2.92	2.30	1.87
savage	20.9	9.6	4.01	2.31	3.62	1.53	1.65
atomic model	216	131	43.3	31.7	26	16.6	16.6
weather model	n/a	n/a	n/a	n/a	619	517	357
geomechanical model	n/a	n/a	n/a	n/a	291	252	n/a

NOTE - linpack, whetstone, and livermore loops are performance times measured in thousands of floating point operations per second. All other data are execution time in seconds.

Our conclusion is that the 80287 *[& 80387]* chip is obsolete. The Weitek chip is very worthwhile when minimum execution time is mandatory. ~~The Cyrix chip appears to be of only modest benefit for substantial extra cost.~~

The tax free price of the 2C87 ex Melbourne is $400 for 10 MHz operation, $595 for 20 MHz operation. We also have available a daughter board which allows all AT machines to run the 802C87 at 20MHz irrespective of the clock rate applied to the 80287 socket. Thus ATs which have 16 or 20MHz CPUs can gain considerable performance in Math chip operations. Please note that for communication reasons there is little advantage in operating the 2C87 faster than the CPU clock.

The tax free prices of the Cyrix chip are ~~US$775~~ *A$725* (20MHz), ~~US$975~~ *A$925* (25MHz), and ~~US$1250~~ *A$1125* (33MHz). The prices of the Weitek 3167 is A$1340 (20 MHz), A$1740 (25 MHz), and A$2200 (33MHz).

All math chips will be invoiced at 11.1% higher than the prices given here with at 10% discount given for payment received within 7 days of receipt of goods.

FORTRAN8X DOCUMENTATION

We still have a limited number of copies of the entire specification for the current state of FORTRAN8X. The cost is $35 inclusive of airmail postage. The second public review period ended November 24. Largely as a result of Tom Lahey's FORTRAN seminars many Australians have writtten to the 8X committee.

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UPGRADE OF F77L TO F77LEM/32

Until 30 June 1990 we are offering those who purchased F77L from us an economical way to transfer to F77LEM/32 from F77L. This offer is only of interest to those who will work exclusively with F77LEM/32 and have no further need for F77L. Version 3.0 or earlier users of F77L will be given a credit of 50% of the original purchase price towards the purchase of F77LEM/32 at the normal retail price. F77L version 4 users will be given a credit of $400 if the documentation is in as new condition and $350 if it is not. Under this offer all F77L material must be returned to Computer Transition Systems.

PC METRIC

PC-METRIC is a software analyser. It makes objective quantitative measures of the complexity of source code. The value of metrics is that it identifies which portions of a program appear to be unduely complex and, as a result, are potential areas where maintainability or reliability will likely be a problem. Versions are available for Ada, Assembler, C, Cobol, dBASE, FORTRAN, Modula-2, Pascal, and Quickbasic under MSDOS. Under Unix versions for Ada and C are available. MSDOS versions are $285. Unix versions are $610.

COMPILER UPDATES

The most recent file dates on the Lahey compiler FIX files are given below. Updates are available at no cost other than return postage (currently $1.00 for airmail) upon request by Computer Transition Systems customers who supply a formatted 1.2 MB or 1.44MB diskette.

F77L.FIX 30 Nov 89 (version 4.0)   F77LEM.FIX 11 Sept 89   F77L3.FIX 17 Nov 89 (version 2.01)

SPINDRIFT UPDATES

As is mentioned in the most recent issue of the Lahey newsletter 'Newsfile' the current version of the F77L and F77LEM/32 Spindrift Libraries is 1.2. Those who have Spindrift and have either F77L version 4.0 or F77LEM/32 version 2.0 must update their copies of Spindrift by fowarding to us one formatted disk with return postage. There is no charge for the Spindrift update.

USE OF C LIBRARIES WITH LAHEY COMPILERS

During Tom Lahey's recent Australian tour I discovered several people are successfully using the C interface in Lahey FORTRAN to take advantage of subroutine libraries intended for use with C compilers. We would very much appreciate being advised of user experience - both positive and negative - in using C subroutine libraries from FORTRAN. We can then advise those who enquire about the practicality of using their C libraries from FORTRAN.

HGRAPH GRAPHICS LIBRARY USERS

We have received an update for VTRANS for the F77L version of HGRAPH. It is available at no charge to those who send us their original disks plus a formatted 1.2MB disk and return postage.

Due to low cost, powerful features, and implementation on all Lahey compilers (as well as Turbo Pascal, Turbo C, Logitec Modula-2, and Microsoft FORTRAN, C, Pascal, & QuickBasic) HGRAPH has been our most popular graphics library. Heartland Software, the producers of HGRAPH, have advised us that they are planning a new release of their library in 1990. At this time they are asking for user feedback on the documentation, current features and new features users would like to see. Heartland has prepared a questionnaire for users to find out what people would like in the next edition of HGRAPH. Copies of this questionnaire are available on request from Computer Transition Systems. The new HGRAPH should have completely independent device drivers. Heartland Software can be reached on (515) 2928216 or by mail - 234 South Franklin, Ames, Iowa, 50010, USA. Faxes can also be sent to their regular phone number.

INCREASED PRICES

The prices of several items in the September F77L REPORT have changed. Most changes have been increases. Generally these are the result of price increases by the originator of the goods. A list of revised prices follows. The old price is given in brackets.

Numerical Recipes Disks $60 ($55)   FORCHECK $610 ($590)   PLOT88 (F77LEM/32) $640 (new product)
All Polytron products - 10% increase

The following products are no longer available - Alpha Computer Service products, Polyboost II, Metawindow (FORTRAN version).